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Effect of Coulomb interaction on the spin-galvanic mode in a two dimensional electron gas with Rashba spin-orbit interaction. GERNOT GUNTHERODT, Physikal. Institut IIA, RWTH Aachen, 52056 Aachen, Germany, YAROSLAW B. BAZALIY, STUART S. P. PARKIN, IBM Almaden Research Center, 650 Harry Road, San Jose, CA 95120, B. V. BAZALIY, Appl. Mathematics Inst., Natl. Academy of Science, Donetsk, Ukraine — Recently a new propagating mode of coupled charge and spin oscillations was predicted in a two dimensional electron gas with a sufficiently strong Rashba interaction. We show [cond-mat/0511534] that Coulomb interaction qualitatively modifies the spectrum and increases the characteristic wavelength of this mode by orders of magnitude, but does not suppress it. An absorption experiment that can conclusively detect the presence or absence of such a propagating mode is proposed.

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